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COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

U. S. Department of Agriculture
and State Agricultural Colleges
Cooperating

States Relations Service, Office
of Cooperative Extension Work,
Washington, D. C.

A DIRECTORY OF SOME OF THE DEPARTMENT'S ACTIVITIES

OF PROBABLE INTEREST TO EXTENSION DIRECTORS

STIMSON TO STOUT

May 1, 1923.

This proposed joint activity will suffice as a starting point and you probably will bring up legal questions concerning incorporation. It is recommended that you consult your legal experts to make sure all forms and legalities will be provided for satisfactorily. Each organization will remain in control of its own activities, but joint conferences may be held from time to time. This joint committee will consist of two members from each organization. Each member will have the right to represent his organization.

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OFFICE OF MOTION PICTURES

Fred W. Perkins, Chief,
1363 C Street, S. W.,
Branch Tel. 13.

Complete equipment for the making and handling of motion pictures can be inspected. This equipment includes a projection room, film vaults, studio, and laboratory. The staff consists of trained scenario writers, cameramen, and laboratory workers. Arrangements can be made to have films shown.

OFFICE OF EXHIBITS

Joseph W. Hiscox, Chief,
7th and B Street, N. W.,
Room 5-227. Branch Tel. 573.

Work is in progress on exhibits for various State, interstate, and international expositions, including boys' and girls' club exhibits for the Tri-State Fair at Sioux City, Iowa, and the Eastern States Exposition at Springfield, Mass. An exhibit on dairying for the National Dairy Show, which is also under construction, combines several novel features in exhibit making and should be of interest to those from dairy sections. Other educational exhibits which are being planned on poultry and livestock may also be under construction.

WEATHER BUREAU

Charles F. Marvin, Chief.
24th and M Streets, N. W.
Room No. 12. Tel. West 1640

General Administration:

Object.- To direct the policy and business affairs of the bureau and supervise its scientific activities.

Assignment.- C. F. Marvin, Chief; C. C. Clark, Assistant Chief; R. H. Weightman, Chief Clerk.

Weather Forecasts and Warnings:

Object.- To collect weather observations for forecast purposes; to issue weather forecasts twice daily, including frost, cold wave, hurricane, storm and small craft warnings; to issue special weather forecasts in connection with forest fire prevention, shippers' forecasts and other special forecasts in the interest of manufacturing, commerce and agriculture; and to print the same or issue by other means and disseminate by maps, bulletins, flags, forecast cards, and telegraph, telephone and radio messages; to prepare reports for the press of weather synopses, forecasts and full and complete information concerning the current local weather conditions in all their phases. Research investigations of the problems of forecasting are conducted for the purpose of improving the accuracy of and extending the time covered by the forecasts and warnings and of formulating rules and enunciating principles.

Assignment.- E. B. Calvert, E. H. Bowie, Charles L. Mitchell.

River and Flood Work:

Object.- To establish and maintain river-gaging stations and substations which observe and report rainfall, river stages and weather conditions; to disseminate information concerning river stages, especially in times of flood or expected flood, and to issue flood warnings to persons and interests most directly benefited thereby. River and flood research investigations are conducted for the purpose of improving methods of flood forecasting; of determining the amount of snow and its water content in mountainous districts of the western states.

Assignment.- H. C. Frankenfield.

Climatological Work:

Object.- To collect, compile, chart, and discuss climatological data of the United States and its outlying territories; to print and promptly disseminate the information to the public, to commercial exchanges, and to all parties and organizations interested in or benefited by the service that can be promptly reached by the usual means of communication available and to collect and compile for publication climatological

data. Research investigations in climatology are conducted to determine more fully the climate of the United States, including the insular possessions.

Assignment. - P. C. Day.

Agricultural Meteorology:

Object.- To collect and disseminate information relative to the effect of current weather conditions on farm activities, the growth of vegetation and the development of crops; also to give advice and disseminate information relative to the utilization of the special forecasts and warnings issued by the Weather Bureau in the interests of various lines of agriculture and stock raising. Research investigations of the relation between climate and weather and crops development are conducted to determine the effect of current meteorological factors upon the growth of vegetation; studies are made of meteorological and climatological conditions in their relations to the growth of plants, the yield of crops, and the distribution of crop areas.

Assignment.- J. Warren Smith.

Aerological Investigations:

Object.- To obtain free-air data in different parts of the United States, with the purpose of making these data immediately available for the information and assistance of the forecasters of the Weather Bureau, the aviation training fields, and aviators flying over such transcontinental mail and other aerial routes as may be established; and to summarize, study, and publish these data, with the purpose of furnishing reliable information as to mean free-air conditions of pressure, temperature, humidity, density, and wind direction and velocity, by months and seasons, under different types of pressure distribution at the surface and different parts of the country for the information and benefit of aviation, the artillery services of the Army and Navy, and for the purpose of increasing our knowledge of the dynamics of the atmosphere.

Assignment.- W. R. Gregg.

Marine Work:

Object.- To collect, chart, and compile meteorological observations made on board vessels at sea with the purpose of making these data available for the information and assistance of the forecasters of the Weather Bureau and to disseminate the information of the Weather Bureau and to disseminate the information for the benefit of navigation by publication on the pilot charts issued by the Hydrographic Office, Navy Department.

Assignment.- F. G. Tingley.

Solar Radiation Investigations:

Object.- To determine the intensity of the light and the total amount of heat received directly from the sun or diffusely from the sky under differing atmospheric conditions and at different times of the day and seasons of the year; to obtain normals of insolation in terms of both heat

and light; to investigate the relation between skylight polarization and insolation on clear days; to determine the relation between atmospheric conditions and nocturnal radiation.

Assignment.- H. H. Kimball.

Location.- American University, Massachusetts and Nebraska Aves., N. W.

Evaporation Investigations:

Object.- To determine under standard conditions of exposure the relative values of evaporation in various portions of the United States, daily measurements are made at about 50 stations located in various portions of the United States. Results are published in State Section Reports and in Annual Reports of Chief of the Weather Bureau.

Assignment.- B. C. Kadel.

Meteorological Investigations:

Object.- To determine the nature of meteorological phenomena and the laws of their actions for the purpose of extending our knowledge of meteorology, and applying this knowledge to weather forecasting, aeronautics, etc.

Assignment.- W. J. Humphreys.

Seismological Investigations:

Object.- To map the United States according to seismological activity and locate geological faults as an aid in most advantageously placing dams, aqueducts and other engineering structures; to study in detail earthquake vibrations and draw inferences therefrom in regard, on the one hand, to the scientifically important problem of the structure of the earth, and, on the other, to the practical question of types of building best adapted to withstand seismic shocks.

Assignment.- W. J. Humphreys.

Investigations of Frost-Protection Methods:

Object.- To determine the most economical and efficient methods of frost protection now in use and to improve such methods; to investigate meteorological and climatological conditions at typical key stations in different fruit and truck producing areas; and to coordinate these conditions with those in other sections where frost-protection methods are practicable under similar or different topographic conditions with similar or varying air drainage, isothermal layers, etc., so that the most accurate minimum temperature forecasts may be made for these different districts.

Assignment.- J. Warren Smith.

Maintenance of Instrumental Equipment:

Object.- To select, test, improve, design, install and maintain the instrumental equipment for the scientific work of the bureau.

Assignment.- B. C. Kadel and S. P. Fergusson.

Points of Special Interest to Visitors.
24th and M Streets, N. W.

Observatory:

In the Observatory located on the third floor of the main building, instruments used in recording the direction and velocity of the wind, air pressure, sunshine and precipitation can be seen.

Every afternoon at three o'clock small balloons are liberated from the roof for observing the velocity and direction of the upper air currents.

Forecast Map Room:

In the forecast map room, which is on the first floor of the main building, the daily weather maps are prepared from data received from more than 200 offices throughout the states. Every day at 8 a. m. and 8 p. m., 75th Meridian time, reports on the weather at these different stations are received by telegraph in code. These reports are promptly decoded and recorded on form maps for use of the forecaster in issuing the daily forecasts and warnings. While this work is in progress and the forecasts are being made no visitors are admitted to the room as the work must be done with the greatest expedition to be of value. Visitors are admitted to the forecast map room and the details of the work are explained to them between the hours of 11 a. m. and 4:30 p. m.

Library:

This bureau possesses the best meteorological library in the world, consisting of 40,000 volumes covering all phases of the subject. It is on the first floor of the main building.

Printing Plant:

The Weather Bureau maintains a printing plant for the prompt dissemination of its weather forecasts and other information. The printing plant is located on the ground floor of an annex building on the Weather Bureau grounds at 24th and M Streets.

Visitors are asked to come to the office of the Chief Clerk, Room 17, 2nd Floor, Main Building, where arrangements will be made to conduct them to points of interest.

BUREAU OF ANIMAL INDUSTRY

Office of Chief of Bureau

J. R. Mohler, Chief,
M. W. Kling, Secretary,
East Wing, Room 225, Branch Tel. 140.

For information not specifically listed in this directory consult:

C. C. Carroll, Administrative Assistant, for matters dealing with administration, appropriations, and unclassified projects, East Wing, Room 205, Tel. 141.

J. R. Cohran, Chief Clerk, for matters dealing with official notices, correspondence files, and similar matters, East Wing, Room 205, Branch Tel. 141;

D. S. Burch, Editor, for matters dealing with publications, posters, press material, and manuscripts, 1350 B Street, S. W., Branch Tel. 152.

Location of Principal Buildings.

Building F, Seventh and B Streets, N. W.
East Wing, Twelfth and B Streets, S. W.

Animal Husbandry Division

E. W. Sheets, Acting Chief.
Building F, Room 4-221, Branch Tel. 419.

The division conducts investigations and experiments in breeding, feeding, and management of livestock and poultry.

Animal Genetics. Investigations on effects of inbreeding and on factors determining size, fertility, color, etc., in guinea pigs and other animals. (Experiments are conducted at farm, Beltsville, Md.) Sewall Wright in charge. Washington office, Room H-234, Branch Tel. 414.

Beef Cattle Investigations. Including feeding, breeding, research work, and compilations. E. W. Sheets in general charge; W. H. Black in direct charge. Room 4-218, Branch Tel. 415.

Horse and Mule Investigations. Including breeding horses for general work, breeding Morgan horses, certification of imported animals for breeding (certificates include dogs also). J. O. Williams in charge, Room 4-208, Branch Tel. 413.

Swine Investigations, including feeding and killing hogs and curing pork, soft-pork investigations, breeding razorback hogs to improve breeds, and similar work. E. Z. Russell in charge, Room 4-205, Branch Tel. 417.

Sheep and Goat Investigations, including farm sheep investigations, range sheep investigations, studies of wool and other animal fibres, milk goat investigations. D. A. Spencer in charge, Room 4-214, Branch Tel. 412.

Poultry Investigations, including studies of farm poultry, backyard poultry keeping, pigeon and squab investigations, and related work. A. R. Lee, acting in charge, Room 4-217, Branch Tel. 420.

Animal Nutrition Research, including experiments and studies of the maintenance, growth, development, fattening, and composition of animals, as affected by nutrition; the functions and values of nutrients in nutrition and the relative nutrition requirements of animals under varying conditions for different purposes. E. W. Sheets in general charge, Room 4-223, Branch Tel. 419.

Meat Investigations, to determine the factors influencing the quantity and quality of meats as pertaining to climate, feeds, age, sex, degree of finish or fatness, rapidity of methods of fattening, slaughtering, cutting, curing, and shrinking. K. F. Warner, Room 4-211, Branch Tel. 417.

Animal Husbandry Experimental Farm, located at Beltsville, Md., 14 miles northeast of Washington, and accessible by train, trolley, or automobile. Conducts wide range of experimental work pertaining to swine, sheep, and poultry. B. F. Brandon in charge.

Biochemic Division

M. Dorset, Chief,
East Wing, Room 350, Branch Tel. 143.

This division conducts biochemical and bacteriological research concerning animal diseases, meat products, and disinfectants. It produces tuberculin and mallein and analyzes dips and disinfectants. The main laboratory is in Washington, D. C. Hog-cholera research is conducted also at Ames, Iowa.

Dairy Division

C. W. Larson, Chief,
East Wing, Room 24, Branch Tel. 401.

This division conducts research and field investigations of dairy farming and dairy products, performs certain inspection duties, studies production and manufacturing problems.

Dairy Introduction, including cow-testing and bull-association work, studies of creamery and cheese-factory problems, milk-for-health campaigns, and similar activities for the dissemination of information on profitable dairying and use of dairy products. S. C. Thompson in charge, Room 8, Branch Tel. 156.

Market Milk Investigations, including studies of dairy sanitation, market-milk problems, and milk-plant management. Ernest Kelly in charge, Room 28, Branch Tel. 430.

Dairy Research Laboratory, including ice cream investigations, studies of butter and dairy by-products, chemistry and bacteriology of milk, nutrition of dairy cows, manufacturing and ripening of cheese. L. A. Rogers in charge, Room 401, Branch Tel. 403-1.

Dairy Experimental Farm, located near Beltsville, Md., 14 miles northeast of Washington, and accessible by train, trolley, or automobile. Studies include breeding, feeding, and management of dairy cattle. T. E. Woodward in charge.

Other Dairy Activities, including planning of dairy buildings and apparatus, temperature control, and mechanical problems. J. T. Bowen and K. E. Parks, Room 403, Branch Tel. 402-2.

Dairy Cattle Breeding, including investigations for breeding dairy animals for increased production and investigations in the relation of form and type of animals to production. R. R. Graves in charge, Room 12, Branch Tel. 158.

Experiments with dairy products are conducted at Grove City, Pa.

Division of Hog-Cholera Control

U. G. Houck, Chief,
East Wing, Room 229, Branch Tel. 145.

This division carries on field work against hog cholera and directs field forces in various States. Engaged in outbreaks of hog cholera and other infectious diseases of swine.

Division of Virus-Serum Control

D. I. Skidmore, Chief,
1350 B Street, S. W., Branch Tel. 142.

This division administers the virus-serum-toxin act and supervises the preparation of veterinary biological products at plants operating under United States veterinary licenses. It issues permits covering manufacture and importation of veterinary biologics and maintains a corps of inspectors who supervise work at licensed establishments and collect samples of products.

Editorial Office

D. S. Burch, Editor
1350 B Street, S. W., Branch Tel. 152.

This office edits bulletins, circulars, special articles, handles news material for all divisions of the Bureau, aids in the preparation of lantern slides, motion pictures, and exhibits, conducts and keeps records of the Better Sires--Better Stock" campaign, handles literature for the "Better Feeding of Livestock" campaign, compiles statistics on meat production, consumption, imports, and exports, and performs miscellaneous work in the field of publications, mailing lists, translating, etc.

Exhibits

R. S. Allen, In Charge,
East Wing, Room 39, Branch Tel. 434-1.

This office plans exhibits for use at State fairs and special shows, and consults with various officials, also prepares, revises, and distributes exhibit material.

Experiment Station

E. C. Schroeder, Superintendent,
Bethesda, Md.

The Experiment Station deals principally with veterinary problems and conducts investigations in abortion, tuberculosis, dourine, foot-and-mouth disease, and other diseases of animals. It is 8 miles northwest of Washington and is reached conveniently by automobile or trolley car.

Field Inspection Division

A. W. Miller, Chief,
Building F, Room 3-204, Branch Tel. 426.

This division conducts work in the eradication of livestock diseases and parasites in the field, supervises interstate transportation of livestock and enforces the 28 hour law, conducts quarantine activities, including inspection of vessels carrying export animals, supervision of imported animal by-products, forage, etc., and issues necessary certificates.

Meat Inspection Division

R. P. Steddom, Chief,
Building F, Room H-222, Branch Tel. 407

This division conducts Federal meat inspection at slaughtering and processing in establishments engaged in interstate and foreign commerce, supervises transportation of meats and inspects imported meats.

Pathological Division

J. S. Buckley, Chief,
East Wing, Room 302, Branch Tel. 144.

This division conducts scientific research in animal diseases including abortion, anthrax, dourine, stock poisoning by plants, glanders, and poultry diseases. The division makes analyses for various branches of the Government.

Tick Eradication Division

R. A. Ramsay, Chief,
1350 B Street, S. W., Branch Tel. 404.

This division conducts work of eradicating the cattle tick in co-operation with authorities of the various Southern States. The work is almost entirely of field character, including inspection, education, and some scientific work and studies of dips.

Tuberculosis Eradication Division

J. A. Kiernan, Chief,
Building F, Room H-154, Branch Tel. 149.

This division conducts the nation-wide campaign for the eradication of tuberculosis from farm animals under the accredited-herd and area plans and in cooperation with State authorities. Developments of the work include monthly reports on progress throughout the country, and information on various combinations of tests and improvement of technic.

Zoological Division

B. R. Ransom, Chief,
East Wing, Room 233, Branch Tel. 146.

This division conducts laboratory and field investigations in animal parasites. Activities include collecting and indexing parasites, studies of roundworms of sheep and hogs, treatment for internal and external parasites, and miscellaneous investigations.

Office of Personnel

G. H. Russell, In Charge,
1350 B Street, S. W., Branch Tel. 435.

Maintains personnel records of Bureau employees and arranges for appointments, transfers, and other changes.

FOREST SERVICE

Wm. B. Greeley, Forester.
930 F St., N. W.
Room 706, Tel. Main 6910.

Suggested FARM FORESTRY Projects
For Year 1924

Improving farm woodlands: What to cut and what to leave, and how to protect the trees so as to grow the maximum yield of timber and bring the highest net financial returns. (Ask for Mr. Mattoon, or Mr. Tillotson, at the Forest Service).

Growing fence posts on the farm: Kinds of trees to grow for durable woods and for non-durable woods suitable for treating; method of starting and growing. (Ask for Mr. Tillotson or Mr. Mattoon, at the Forest Service)

Treating farm timber for fence posts, and other uses: This is a timely project all over eastern United States. Better utilization of our timber is a part of good farm management. (Ask for Mr. Betts, Mr. Cuno, or Mr. Mattoon, at the Forest Service).

Growing timber on gullied, worn-out and other idle farm lands: The checking of soil wastage and the profitable utilization of idle lands on the farm are badly needed. Why not put poor lands and idle acres to work in producing a standard marketable commodity? (Ask for Mr. Mattoon or Mr. Tillotson, at the Forest Service.)

Establishing windbreaks: A project for the Middle Western States. The younger farmers are neglecting this paying farm enterprise, which was so popular 30 years ago. Much has been learned about planting forest trees for protection purposes. (Ask for Mr. Tillotson or Mr. Mattoon, at the Forest Service).

Estimating standing trees and measuring logs: With the use of two simple cruising sticks the merchantable contents of standing trees may be estimated fairly closely, and the actual mill cut of logs determined. (Ask for Mr. Mattoon or Mr. Tillotson at the Forest Service.)

Increase the Farm Income by Growing Timber

BUREAU OF PLANT INDUSTRY

W. A. Taylor, Chief
West Wing,
Room 204, Branch Tel. 103.

The Office of Dry Land Agriculture confines its work to the ten States, as follows: Montana, North Dakota, South Dakota, Wyoming, Nebraska, Colorado, Kansas, New Mexico, Oklahoma, Texas.

Our field men are already in touch with the State local extension men in these States and with most, if not all, of the State directors of extension. Mr. Chilcott, who is in charge of this office, is personally acquainted with some, but not all, of these State directors. When they come to Washington he would be pleased to have all of them call at his office, Room 143, West Wing, and will try to give them such information concerning the work of this office as they may desire.

Office of Foreign Seed and Plant Introduction. State directors from the South might be interested in conferring with Messrs. Young and Thomas of this office regarding dasheens, yams, chayottes, jujubes, and other specialties in the way of fruits and vegetables. Messrs. Young and Thomas will be in the office, Room 230-A Auditors' Building, at the service of the State directors whenever they may happen to be in Washington, and they will prepare a program covering the features which may be worth while considering in this connection.

Crop Acclimatization and Adautation Investigations: In the last few years a series of new varieties of cotton, some of them from foreign countries and others originated in the United States, have been developed by the Bureau of Plant Industry. These varieties are superior to those in general cultivation, not only in yield and earliness, but in length, quality and uniformity of the staple, and have been established in cultivation on a scale of commercial importance that now reaches into the millions of bales and hundreds of millions of dollars of annual production. The series covers the entire area of cotton production in the United States, the most promising varieties being the Lone Star, Acala, Trice, Durango, Columbia (also known as Webber), Meade and Pima Egyptian.

It has become apparent that full utilization of superior varieties of cotton and scientific methods of handling the crop are to be expected only in communities that restrict themselves to a single variety of cotton. One-variety communities are necessary to maintain stocks of pure seed that are the basis of production and use of any variety of cotton on a scale large enough to give the variety a practical, commercial and industrial status, and it is only in such communities that the habits and special behavior of a variety becomes sufficiently well known to permit the farmers to become really skillful in the handling of the crop, so that a product of the highest quality can be secured and placed to the best advantage on the market.

In view of the progress that is being made through the organization of one-variety communities it is believed that this plan opens the way to a

general improvement of cotton production that is practically impossible in communities where different kinds of cotton are grown, and any new variety "runs out" in a few years through mixture of seed at the public gins and crossing in the fields.

Study of the structure and habits of growth of different kinds of cotton under different conditions has led to the development of improved methods of culture. Experiments in the application of the new single-stalk system have been conducted in many localities in different parts of the Cotton Belt. The results of early experiments, conducted in Virginia, South Carolina, Texas, Oklahoma, Arizona, and California, show that the improved method is effective in promoting earliness, and increases of 20 to 100 per cent in the yield of seed cotton have been recorded.

The advantage of single-stalk culture lies in securing earlier and larger crops under short-season conditions. The system is based on the discovery of two facts -- that the cotton plant has two distinct kinds of branches, and that the formation of the branches can be controlled largely by cultural means. Suppression of the vegetative branches or secondary stalks of the plants insures a better development of the lower fruiting branches of the main stalk where the early crop is produced.

The development of superior varieties and improved methods of culture has been largely responsible for the extension of cotton growing into the more arid regions of southwestern United States. The first observations and experiments that led to the discovery of the new single-stalk system of culture were made in connection with the Egyptian cotton, and have contributed to the establishment of the Egyptian cotton industry of the Salt River Valley of Arizona.

O. F. Cook or C. B. Doyle, Room 131 West Wing.

Forage Crop Investigations:

ALFALFA TESTS - conducted by R. A. Oakley and H. L. Westover, Room 7209 Building F, 7th Street in the Mall.

There are a series of plots of alfalfa at Arlington Farm, sown last spring. These show quite definitely that commercial Turkestan alfalfa is not suited to conditions here, and our tests elsewhere in the East have given similar results. The plots present the case so strikingly that the directors of extension would probably be interested in seeing them and discussing them with Dr. Oakley or Mr. Westover. The following varieties of alfalfa are growing in duplicate plots at Arlington; Kansas-grown common, Grimm, imported Turkestan, Argentine, Arizona-grown common; Dakota-grown common, imported Spanish, Cossack (a variegated alfalfa similar to the Grimm), and Cape Lucerne (an original strain of common from South Africa). Within the last year there has been a large quantity of alfalfa seed imported from Argentina. The question has been raised by several of the State experiment station officials as to whether seed from Argentina is suitable for this country. Our field tests are not sufficiently complete to give positive data on the subject, but our greenhouse tests under the long-and-short-day method show quite clearly

the comparative features of the imported Argentine strains in comparison with the commercial strains now generally established here.

GRASS GARDEN EXPERIMENTS - conducted by C. V. Piper, R. A. Oakley, Lyman Carrier and P. L. Ricker, all in 7th Wing, 2nd floor, Building F, 7th Street in the Mall.

The grass garden at Arlington Farm has proved very interesting to certain extension directors, especially those in the New England States, and it is quite probable that it will prove interesting to nearly all the directors in the northeastern part of the United States - that is, north of the Ohio and Potomac Rivers and east of the Mississippi. There are a series of plots at Arlington Farm that show what can be accomplished by the vegetative method of propagating the bent grasses, and which also show certain features of the brown-patch disease control, and in the series are included plots of the common turf grasses used on lawns, parks, and golf courses.

INCREASING VALUE OF SUDAN GRASS - Investigations conducted by H. N. Vinall, Room 7215, Building F, 7th Street in the Mall.

During the last four years, Sudan grass has shown a steadily increasing popularity as a summer pasture crop, not only in the southern Great Plains, where it first became well known, but also in states farther east, such as Missouri, Iowa, Illinois, and Indiana. We are receiving quite frequently letters from farmers in these latter states commending Sudan grass very highly. They have found that the grass will grow luxuriantly during the hot, dry summer months, when bluegrass and other pasture grasses in these states are more or less dormant. It has been quite profitable, therefore, especially for the dairy farmer, to seed a small field with Sudan grass to be used during the hot summer months in furnishing his cattle with succulent feed. Sudan grass has also been found to be useful for the ordinary farmer who engages in a mixed type of agriculture, because he can use it as pasturage for his work stock, turning them on a Sudan grass pasture at night. Hogs also do well on the grass, and it will give a very much larger carrying capacity with hogs than will the ordinary pasture.

SOY BEANS - W. J. Morse in Charge, Room 7223, Building F, 7th Street in the Mall.

The production of oil and meal from the soy bean is becoming a profitable industry, especially in the Corn Belt and in the southern States. In the eastern half of the United States, improved varieties of soy beans have been developed for various uses. The soy bean is becoming more and more utilized for grain, pasture, and hay purposes.

CLOVERS - A. J. Pieters in charge, Room 7225, Building F, 7th Street in the Mall.

It is believed that the extension service should educate the farmers to use American-grown red clover seed whenever it can be obtained. Practically all of the experiment stations in the Clover Belt are carrying on

cooperative tests with the office of Forage Crop Investigations to determine the comparative values of imported and domestic red clover seed. It is also believed that the extension service should impress upon the farmers the need of using lime, and phosphates especially, in order to overcome the clover failure. In this connection it might perhaps be called to the attention of the directors of extension that the office of Forage Crop Investigations has been desirous of carrying on a rather extensive cooperative demonstration on this point, but that so far the Office has not been able to get the support of the station. The use of sweet clover, especially as a pasturing and soil-improvement crop on lands that have a sufficient supply of lime or which can be economically limed, is believed to be good practice. The office is also studying the possibility of introducing various other clover-like legumes.

VETCHES AS FORAGE AND GREEN-MANURING CROPS - In charge of Roland McKee, Room 7215 Building F, 7th Street Mall.

The principal features in connection with our studies of vetches are the determination of the relative superior value of purple vetch, Tangier peas, and small-seeded horse beans for green-manuring in the Southwest; the relative general superior value of the Oregon strain of common vetch in the Pacific Coast States and in the Southern States; the superior value of Hungarian vetch for wet lands; of Monantha vetch for the immediate coastal area of the Pacific Coast; and the superior value of woody-podded vetch for the areas of the Southern States where hairy vetch has been previously used.

SOUTHERN PASTURE AND MEADOW GRASSES - In Charge of C. V. Piper, Room 7211 Building F, 7th Street in the Mall.

Some of the recent information regarding new grasses adapted to the South, both for pastures and for meadows, will be of interest to directors from the southern states.

Tobacco Investigations:

USE OF MAGNESIA AS A FERTILIZER FOR TOBACCO - W. W. Garner, In charge, Room 428 West Wing.

Dr. Garner expects to be here during the months of April and May and will be pleased to confer with any State directors of extension who may be particularly interested in this feature or other matters pertaining to the work of his office. Recommendations regarding the use of magnesia in tobacco culture would be restricted primarily to the Coastal Plains region of the South Atlantic States and would have to do merely with the use of dolomitic limestone or of potash salts which regularly contain considerable quantities of magnesia. In any case, any specific recommendations along these lines would probably reach the county agents too late for use during the coming season.

Sugar Plant Investigations: C. O. Townsend, In Charge, Room 307 West Wing.

In some localities, control measures have been worked out with reference to crop rotations and certain regulations have been formulated with reference to the factors causing the spread of the nematode. If any of the ex-

extension workers coming from Utah, Idaho, Colorado, and California are interested, Dr. Townsend will be glad to discuss the matter with them. Mr. Thorne, who has direct charge of this work, is stationed in Salt Lake City.

Forest Pathology: Haven Metcalf, In Charge, 3rd floor, 221 Linworth Pl. S. W.

The only element of this work that would be of interest to the State directors of extension would probably be that in tree surgery. J. Franklin Collins, of this office, who has charge of this work and is the proper man to present it, is stationed in Providence, R. I.

Blister Rust Control: S. B. Detwiler, In Charge, Room 6-217, or J. F. Martin in Room 6-210, Building F, 7th Street in the Mall.

The blister rust program which is under way in the northeastern States is now conducted in cooperation with the extension service in the various States affected. The work consists primarily of securing through education and demonstration the general application of control measures by pine owners.

Cereal Investigations:

BARBERRY ERADICATION - F. E. Kempton, in charge, 1306 B St., S. W., and H. B. Humphrey, in charge of cereal disease investigations, Room 106, West Wing.

CORN ROOT ROTS - A. G. Johnson, in charge, Room 104 West Wing.

SEED TREATMENT TO CONTROL VARIOUS CEREAL SMUTS - W. H. Tisdale, in charge of smut investigations, Room 344, West Wing.

GROWING OF IMPROVED OAT VARIETIES (Upper Mississippi Valley and Northeastern States), T. R. Stanton, in charge of oat investigations, 1306 B St., S. W.

GROWING OF KOTA WHEAT (spring wheat section), J. Allen Clark, in charge of western wheat investigations; and J. H. Martin, western wheat investigations, both at 1306 B St., S. W.

CONTROL OF FLAG SMUT AND WHEAT ROSETTE (take-all) By RESISTANT WHEAT VARIETIES (Illinois and surrounding States), C. E. Leighty, in charge of eastern wheat investigations, 1306 B St., S. W.; A. G. Johnson, (wheat rosette), Room 104 West Wing, and W. H. Tisdale (flag smut), Room 344, West Wing.

Horticultural and Pomological Investigations: L. C. Corbett, Room 405, 220-14th St., S. W.

FRUIT PRODUCTION WORK - Attention should be called to the publications on fruit utilization, especially the "Studies in the Clarification of Unfermented Fruit Juices," "Farm Manufacture of Unfermented Apple Juice," and the bulletin dealing with such specialties as "Evaporation of Fruits," and others of like character, a list of which could be prepared if desired. The advan-

tage in the bulletins discussing the several fruits, which have been prepared by the Department, is that they consider the fruit not merely from a varietal standpoint but from a broad, industrial point of view, thus bringing to the attention of State people, features which are not always discussed in the special publications by the States.

NUT WORK - In connection with the nut project, it is suggested that an effort be made to stimulate the planting of hickory and black walnut trees on lands suited to the production of such trees which are so situated that the development of the trees will not interfere with other productive farm enterprises, the object being the production of an increased supply of edible nuts and an increased potential supply of "spoke timber" and furniture and gun stock material. In the southern States where pecans thrive well, it is believed that a general propaganda of "Plant a Pecan in the Back Yard" for a home supply of nuts would be worthy of the attention of State leaders, particularly if this propaganda is based on the use of standard commercial varieties rather than seedlings.

VEGETABLES - In addition to the seed stocks, it is believed that the attention of the extension leaders should be called to the fact that the Department has publications describing the construction of sweet potato storage houses, the conversion of flue-heated tobacco barns into sweet potato storage houses, and also has blueprints, together with bills of material for sweet-potato storage houses, ranging in capacity from 500 to 15,000 bushels.

The State leaders' attention should also be called to the home garden bulletins which have been available for use in the South as well as those for use in the North; together with bulletins dealing with special crops such as "Tomatoes for Canning and Manufacturing," "The Production of Peas for Canning," "Celery Growing," "Asparagus," "The Production of Late or Main Crop Potatoes," "Potato Production in the South," a complete list of which, with the territory for which they are designed, could be prepared if desired.

Seed Laboratory:

State directors of extension work might generally be interested in our seed testing work, not only in the methods of testing but certain of them in specific work being carried on, such as Dr. Toole's work on the germination of cotton seed. The germination work is carried on by Mr. W. L. Goss in Rooms 15 and 16 of the West Wing; the cotton germination work is carried on by Dr. Ebenezer Toole in Room 17, West Wing; and the seed testing for purity is carried on in Rooms 109 and 110, West Wing, Miss Emma F. Surrine in charge.

Fruit-Disease Investigations:

Control of apple scab, blotch, bitter rot and other apple diseases, John W. Roberts, Room 342 West wing.

Control of peach brown-rot, scab and bacterial spot, John W. Roberts, Room 342, West Wing.

Control of cherry leaf spot and brown rot, John W. Roberts, Room 342, West Wing.

Control of plum brown-rot, John W. Roberts, Room 342, West Wing.

Control of pear blight on pears and apples by eradication; disinfection and other methods, M. B. Waite, Room 319 West Wing.

Control of peach yellows, little peach, and the peach yellows group, M. B. Waite, Room 319 West Wing.

Control of apple scald and of the market rots of peach and apple, Chas. Brooks, Room 316 West Wing.

Transportation and market diseases of pome and stone fruits, Chas. Brooks, Room 316 West Wing.

Control of scab and melanose, H. R. Fulton, Room 340, West Wing.

Control of pecan diseases, pecan scab by spraying, pecan russet by humus applications, J. B. Demaree, Thomasville, Ga.

Cotton, Truck, and Forage Crop Disease Investigations:

Extension programs of practically all States contain work which has a relation to results of research in some one or all of the subjects named, consequently this opportunity for our specialists to meet the extension directors and discuss the application of their work is welcomed. It is suggested that appointments with the various workers be made by calling Mr. F.C. Meier, who represents the office of extension within the bureau on matters relating to plant pathology. Mr. Meier occupies Room 220 West Wing, and may be reached on Branch Tel. 471.

The subjects which are probably of greatest interest, and a list of specialists who are now in Washington and may be interviewed are as follows:

	<u>West Wing</u>
Asparagus rust resistance -----	W. W. Gilbert, Room 214
Bean diseases -----	R. D. Rands, " 215
Cabbage diseases -----	L. L. Harter, " 219
Cotton diseases -----	W. W. Gilbert, " 214
Cucumber diseases -----	W. W. Gilbert, " 214
Onion diseases -----	W. W. Gilbert, " 214
Potato diseases -----	(W. A. Orton E. S. Schultz) " 234
Sweet Potato diseases -----	L. L. Harter, " 219
Tomato diseases -----	F. J. Pritchard, " 211

BUREAU OF CHEMISTRY
W. G. Campbell, Acting Chief,
216 Thirteenth St., S. W.
Branch Tel. 31.

For information concerning the various activities of this Bureau see separate supplement.

BUREAU OF SOILS
Milton Whitney, Chief,
Room 118, East Wing
Branch Tel. 70.

Soil Survey Investigations, Building F, 7th Wing,
Dr. C. F. Marbut, In Charge.

Soil Colloid Investigations, East Wing,
Dr. P. L. Gile, In Charge.

Fertilizer Investigations, Arlington Farm,
Dr. W. H. Ross and Mr. W. H. Wagggaman, In Charge.

BUREAU OF ENTOMOLOGY
Entomology Building
L. O. Howard, Chief
Branch Tel. 250.

Fruit Insect Investigations:

Supervision of work at various field stations on insects affecting fruits, such as apple, peach, cherry, plum, grape, orange, etc., particularly the dissemination of information on these insects and their control.

A. L. Quaintance, entomologist in charge, Entomology Building.

Investigations of Economic Scale Insects: Systematic studies of Coccids, or scale insects, including biologic investigations of these insects.

H. Morrison, Insectary Building.

Systematic Studies of Aphididae, Aleyrodidae, etc.: Biologic investigations of plant lice, white flies, etc., including dissemination of information in regard to their damage and control.

A. C. Baker, Entomology Building. Dr. Baker also acts in charge of the office of Fruit Insect Investigations in the absence of Dr. Quaintance.

Insecticidal Constituents of Plants: Investigations of the insecticidal constituents of plants to determine their efficiency in insect control.

N. E. McIndoo, Insectary yard.

Investigations of Miscellaneous Contact Insecticides: Various contact insecticides are tested against insects in the laboratory to determine their efficiency in insect control.

C. H. Richardson, Insectary yard.

Greenhouse Insect Investigations: Life history studies are made of the more important greenhouse insects, and experimental work carried out with remedies to determine best means of control.

Chas. Weigel, 12th St. Greenhouses.

Stored Product Insect Investigations.

This office deals with insects attacking all commodities in storage, such as corn, wheat, beans, cowpeas and other cereals and seeds, both in bulk and in the manufactured state (including flour and various breakfast cereals), dried fruit insects; insects attacking meats and hides; household pests, including clothes moths, carpet beetles, bedbugs, cockroaches and pests of wool and manufactured fabrics; the value of cold storage temperatures and fumigation with various gases for the protection of foods and other agricultural products, both in the home and in the warehouse.

E. A. Back, Building F, 7th and B Sts., N. W. (Room 225)

Cereal and Forage Insect Investigations.

Supervision of the field activities carried on at 16 field stations throughout the United States, where investigations of the principal insects affecting cereal and forage crops are conducted. These investigations include such important insects as the Hessian fly, chinch bugs, grasshoppers, cutworms, alfalfa weevil, the wheat jointworm, etc. Supervision of both research and control work in connection with prevention of spread of the European corn borer throughout New England, New York, Pennsylvania, Ohio, Michigan and elsewhere.

W. R. Walton, entomologist in charge, Entomology Building, and in his absence, Mr. J. S. Wade.

Bee Culture Investigations.

The bee culture laboratory is located at Somerset, Md., just outside the District of Columbia on Wisconsin Avenue. Investigations on various phases of beekeeping are conducted here, and there is an extensive library of beekeeping literature. The experimental apiary of the bureau is at the laboratory. About one hour is required to reach the laboratory from the main buildings of the Department. (Specific directions for reaching the laboratory may be obtained on request from Chief Clerk of bureau.

E. F. Phillips, agriculturist in charge.

Southern Field Crop Insect Investigations.

Supervision of work at various field stations on insects affecting cotton, tobacco, sugar cane, rice, domestic animals and man.

J. L. Webb, entomologist, acting in charge, Entomology Building.

Truck Crop Insect Investigations.

Studies are made of insects transmitting diseases of certain small fruits, such as raspberry and blackberry; tests of new and miscellaneous insecticides and studies of chemotropism and control of insects on greenhouse vegetables.

C. H. Popence, south end of Insectary Building or W. H. White, Truck Crop Laboratory. General information regarding truck crop activities outside of Washington under bureau supervision may also be obtained from these sources.

Forest Insect Investigations:

Insects Affecting Forest Trees: General supervision of work throughout the United States on forest tree-killing insects and their control, particularly the dissemination of information on these insects and their control.

A. D. Hopkins or T. E. Snyder, Entomology Building.

Insects Affecting Forest Products: General supervision of work throughout the United States on insects injurious to forest products and their control, particularly the dissemination of information on these insects and their control.

T. E. Snyder, Entomology Building.

Insects Affecting Shade Trees and Hardy Shrubs: General supervision of work throughout the United States on insects affecting shade trees and hardy shrubs, particularly the dissemination of information on these insects and their control.

A. D. Hopkins or William Middleton, Entomology Building.

Systematic Studies of Isoptera or Termites: Including dissemination of information in regard to their damage and control.

T. E. Snyder, Entomology Building.

Museum Specialists.

The following specialists are located in the National Museum (third floor) and are engaged in systematic work in the following orders of insects:

- S. A. Rohwer, Hymenoptera.
- A. G. Boving, Coleopterous larvae.
- E. A. Schwarz, Coleoptera.
- August Busck, Micro-lepidoptera.
- Carl Heinrich, Micro-lepidoptera.
- E. R. Barber, Coleoptera.
- C. T. Greene, Diptera.
- Wm. Schauss, Macro-lepidoptera.
- R. A. Cushman, Ichneumonidae.
- Wm. Mann, Formicoidea.
- A. B. Gahan, Chalcidoidea, Cracnidae and Serphoidea.
- L. H. Weld, Cynipoidea.
- H. E. Ewing, Acarina and ectoparasites.
- W. L. McAtee, Hemiptera (Bureau of Biological Survey)
- J. M. Aldrich, Diptera.
- H. G. Dyar, Lepidoptera.

BUREAU OF BIOLOGICAL SURVEY

D. L. Mellen, Chief,
Bureau Building, 228 B St., S.W.,
Room 207 Tel. 244-5-6.

W. C. Henderson, assistant chief of the bureau, Room 207, Branch Tel. 244-5-6.

A. K. Fisher, in charge of economic investigations, and Dr. W. B. Bell, Rooms 200-1, Branch Tel. 245-6. Consideration of matters relating to the control of predatory animals and rodents.

G. A. Lawyer, Chief U. S. Game Warden, Room 202, Branch Tel. 245-6, for matters relating to enforcement of laws relating to migratory birds and interstate commerce in game.

E. A. Goldman, in charge of biological investigations, Room 219, Branch Tel. 245-6 for matters relating to the life history, habits, and distribution of birds and animals.

H. C. Oberholser, Room 219, Branch Tel. 245-6, may be seen relative to the classification and migration of birds.

W. L. McAtee, Building F, Wing 1, Room 218, 7th and B Sts., Branch Tel. 497, is in charge of food habits research and may be seen for information regarding the food and feeding habits of birds and mammals.

OFFICE OF HOME ECONOMICS

C. F. Langworthy, Chief,
Basement of East Wing,
Room 48, Branch Tel. 218

Office of C. F. Langworthy, Chief (Room 48). General Information; small collection illustrating development of home economics and care and repair of house furnishings.

Respiration Calorimeter Laboratory (Room 49) H. G. Barott, in charge, Large respiration calorimeter for study of human metabolism including energy expenditure during various household tasks; small respiration calorimeter for study of heat and gaseous exchange of fruits, vegetables, and other products under different conditions of temperature, humidity, and gaseous surroundings.

Food Selection and Meal Planning (Room 51). Caroline L. Hunt. Development of methods for popular teaching of nutrition; bulletins, charts, score cards to show nutritive values of food supplies and related matters. Information on home economics in negro schools.

General Publications (Room 42) Helen W. Atwater, Ruth Van Deman. Special compilations, score cards, etc., on household management and equipment and other home-economics topics; dietary studies and cooperative studies of standards of living.

Experimental Kitchen, 1312 B St., S. W., Minna C. Denton, Assistant Chief, in charge. Adaptation of certain soft and hard wheat flours to different problems in bread, cake, and pastry making. Opal Rains.

Best methods of fuel conservation with gas and kerosene cooking ranges and problems of cooking and canning of vegetables, fruits and meats. Elsbeth Hoffman.

Home preparation of apple and citrus pectins for use in jelly making. Ruth Johnstin.

Chart showing oven baking temperatures; use of different fats and oils for pastry making. Dr. Denton.

Household Labor Studies (Upper floor) Ilena M. Bailey. Charts showing division of farm housekeeper's day among various activities. Tabulations for cooperative studies of farmer's standards of living.

BUREAU OF PUBLIC ROADS
T. H. MacDonald, Chief,
513 14th St., N. W.
Tel. Main 5333.

Agricultural Engineering: S. H. McCrory, Chief; 1418 Pennsylvania Ave., N. W., second floor. Tel. Main 5333. After getting this number which is the main bureau exchange, call for the appropriate person according to subject on which information is desired, as follows:

Irrigation: Mr. McCrory; Mr. Ervin.

Drainage: Mr. McCrory; Mr. Barrows.

Farm buildings)
Farm machinery)
Farm power) Mr. McCrory; Mr. Betts.
Farm sanitation)
Farm water supply)

Distribution of picric acid: Mr. McCrory; Mr. Barrows.

BUREAU OF AGRICULTURAL ECONOMICS

Administrative Force

Chief, Dr. Henry C. Taylor
Room 720, Bieber Building,
Branch Tel. 202.

Assistant Chief, Lloyd S. Tenny
Room 720, Bieber Building,
Branch Tel. 383.

Director of Market Research,
William A. Schoenfeld,
Room 720, Bieber Building,
Branch Tel. 199.

Director of Economic Information,
J. Clyde Marquis,
Room 708, Bieber Building,
Branch Tel. 207.

Production Divisions

Farm Management Division conducts investigations and studies in farm practices and types of farming, organization of southern farms, farm business analyses, farm incomes, and farm power.

H. R. Tolley, in charge, Room H-354, C Building, 7th and B Streets, S.W., Branch Tel. 292.

Cost of Production Division conducts investigations and studies in farm records and accounts, live stock costs, and crop costs.

R. H. Wilcox, in charge, Room 6-313, C Building, 7th and B. Streets, S. W., Branch Tel. 283.

Crop and Livestock Estimates Division includes the Crop Reporting Board, field statisticians, a section for tabulating and computing crop statistics, and studies statistical methods.

W. F. Callander, in charge, Room 309, 200 14th Street, S.W. Branch Tel. 58.

Marketing Divisions

Cotton Marketing Division prepares and distributes the official cotton standards, classifies cotton, investigates future and spot cotton markets, issues cotton price quotations, makes cotton marketing demonstrations, conducts research studies in cotton marketing, and makes investigations of cotton handling methods.

W. R. Meadows, in charge, Room 816, Bieber Building. Branch Tel. 395.

Live Stock, Meats and Wool Division conducts a market news service, prepares standards for live stock, meats and wool, and investigates marketing methods. C. V. Whalin, in charge, Room 726, Bieber Building. Branch Tel. 266.

Fruits and Vegetable Division conducts a market news service and inspection service, investigates and prepares grades and standards for fruits and vegetables and containers, conducts research work in marketing, and distributes excess wool profits.

W. A. Sherman, in charge, Room 522-A, Bieber Building. Branch Tel. 366.

Grain Division conducts grain investigations, milling and baking investigations, does research work in grain analysis, studies grades for non-standardized grains, devises grain cleaning methods, and administers the Grain Standards Act.

H. J. Besley, in charge, Room 400, Bieber Building. Branch Tel. 360.

Hay, Feed and Seed Division investigates hay and feed marketing, conducts a market news service, investigates seed marketing, prepares hay standards, conducts a hay inspection service, and investigates broom corn marketing methods.

W. A. Wheeler, in charge, Room 416, Bieber Building. Branch Tel. 214 or 323.

Dairy and Poultry Products Division investigates dairy products marketing methods, poultry products marketing methods, conducts a market news service and a dairy products inspection service.

Roy C. Potts, in charge, Room H-238, F Building, 7th and B Streets, S. W., Branch Tel. 311 or 312.

City Market Division supervises Washington Center Market.

C. W. Kitchen, in charge, second floor, Center Market, 9th and Pa. Avenue. Branch Tel. 534.

Warehousing Division licenses grain, wool, cotton and tobacco warehouses under the provisions of the United States warehouse act, and prepares tobacco standards.

H. S. Yohe, in charge, Room 806, Bieber Building. Branch Tel. 393.

Cost of Marketing Division investigates marketing processes and costs in connection with various fruits and vegetables, live stock, meat and dairy products. A. V. Swathout, in charge, Room 6-328, C Building, 7th and B Streets, S. W., Branch Tel. 307 or 309.

General Divisions

Statistical and Historical Research Division investigates foreign competition and demand for American products, compiles production and market statistics, studies transportation problems relating to agricultural products, makes research studies into agricultural history, and prepares charts and the like for graphic presentation of statistics.

O. C. Stine, acting in charge, Room 301, Bieber Building. Branch Tel. 320.

Agricultural Finance Division investigates and studies matters relating to rural private and public finance, agricultural insurance, and rural public utilities.

V. N. Valgren, in charge, Room 427, Bieber Building. Branch Tel. 289.

Land Economics Division investigates and studies land resources and utilization, land reclamation, sale and settlements, studies farm labor problems, land tenure, land values, and negro farmers in relation to the land. L. C. Gray, in charge, Room 101. 200 14th Street, S. W. Branch Tel. 288.

Agricultural Cooperation Division studies the economics of cooperation, the legal phases of cooperation, and compiles statistics of cooperation. Lloyd S. Tenny, in charge, Room 720, Bieber Building. Branch Tel. 321.

Farm Population and Rural Life Division investigates and studies the population aspects of farm tenancy, compiles rural population statistics, studies population aspects of rural community buildings, and investigates and studies farmers' standard of living.

C. J. Galpin, in charge, Room 716, Bieber Building. Branch Tel. 327.

Division of Information edits bureau bulletins and bureau publications including Weather, Crops and Markets, State and Federal Marketing Activities, and the Bureau News, prepares special articles and press releases for the press and general magazines and trade papers, disseminates market information and other data by radio, and prepares and supervises exhibits and motion picture scenarios of the bureau's work.

J. Clyde Marquis, in charge, Room 708, Bieber Building. Branch Tel. 207 or 555.

INSECTICIDE AND FUNGICIDE BOARD

J. K. Haywood, Chairman
220 13th St., S. W.
Tel. 34

The board of four members assists the Secretary of Agriculture in the enforcement of the Insecticide Act of 1910. The principal activities of this board are chemical, bacteriological, and microscopical examination of commercial insecticides and fungicides, and the testing of such products for efficiency, and possible injury. Visitors will be gladly directed to any branch of the work which may be of interest.

FEDERAL HORTICULTURAL BOARD

C. L. Marlatt, Chairman
Entomology Building, second floor,
Branch Tel. 247

The Federal Plant Quarantine Act of August 20, 1912, empowers the Secretary of Agriculture to prohibit or regulate the entry of foreign plants and plant products to prevent the entry into this country with such plants and plant products of new and dangerous plant pests, either insect enemies or plant diseases. It also empowers the Secretary of Agriculture to establish and maintain quarantined districts within the United States for the purpose of preventing the spread of plant enemies or diseases which may have gained local foothold, and to cooperate with the States in measures looking to the extermination of such pests. For this purpose its powers are even broader than plants and plant products, inasmuch as it may control the interstate movement of any article of any character whatsoever capable of carrying any dangerous plant disease or insect infestation.

The Federal Horticultural Board was created August 21, 1912, to assist the Secretary of Agriculture in the enforcement of the Plant Quarantine Act. It is composed of five members, two representing the Bureau of Entomology, two the Bureau of Plant Industry, and one the Forest Service. The present membership of the board is as follows: C. L. Marlatt, Chairman, W. A. Orton, George B. Sudworth, J. D. Hunter and Karl F. Kellerman.

Regulation of Entry of Foreign Plants and Plant Products. Under this act, some twenty-two quarantine and restrictive orders, prohibiting or regulating the entry of foreign plants and plant products, are now being enforced. These quarantine and other orders are for the purpose of excluding such pests as the Mediterranean and other fruit flies, the pink bollworm and other cotton pests, serious diseases of potatoes, cereals and other important crops.

Domestic quarantines. There are now being enforced some fifteen domestic quarantines controlling the interstate movement of plants and plant

products. These have for their object the prevention of spread within the United States of such plant and forest enemies as the gipsy moth and the brown-tail moth, the pink bollworm of cotton, the date palm scale insects, the Japanese beetle, the European corn borer, the white pine blister rust, and the potato wart.

Control of Particular Plant Enemies. In addition to its quarantine activities, the board is concerned in large-scale control operations against particular plant enemies, either directly or in cooperation with other bureaus under special appropriations of Congress to effect the control and, if possible, extermination of such pests as the pink bollworm of cotton, the Japanese beetle, the gipsy and brown-tail moths, the European corn borer, the citrus canker, the potato wart disease, the white pine blister rust and the black stem rust, flag smut and take-all diseases of wheat.

The Port Inspection Service. For the enforcement of its various quarantine and regulatory orders, the board is now developing and maintaining a port inspection service at the principal ports of entry of the United States. This service involves complete control of the entry of products brought under regulation, as, for example, all nursery stock and other plants and seeds, import plant material such as cotton, the importation of which amounts to approximately fifty million dollars worth annually, the importation of corn and small grains and a number of other minor plant products. With respect to the exclusion of the pink bollworm from Mexico, it maintains a border port inspection service along the entire Mexican border--a service which regulates the entry of all imports from Mexico and directs and supervises the disinfection of railway cars and freight, express, baggage and other materials entering from Mexico, to prevent the entry with such cars and materials of cotton seed or other carriers of the pink bollworm enemy of cotton. This Mexican border service involves some seven ports of entry.

Research Work. The board from time to time also cooperates with the other bureaus of the Department in research investigations to secure information necessary for the proper determination of quarantine or other necessary regulations with respect to both foreign plant pests and to such pests of local establishment in the United States. Such research work of the board has had relation to most of the special subjects enumerated above and is undertaken by the Board only when the other bureaus of the Department are not able to give the necessary information and can not from the status of their appropriations and other commitments undertake the necessary investigational work.

Foreign Cooperation. Some thirty foreign countries have enacted legislation and appointed inspection officials to cooperate with the Department of Agriculture in the enforcement of the regulations and quarantines under the Federal Plant Quarantine Act, governing imports of plants and plant products.

State Cooperation. The quarantine and other officials of the several States have been brought into a general organization for aid and cooperation in the enforcement of the Federal Plant Quarantine Act and some seventy such State officials are now connected with the work of the board as collaborators.

of the Department of Agriculture and very materially assist in the enforcement of the Federal quarantine and regulatory orders.

Results. The upwards of ten years of enforcement of the Federal Plant Quarantine Act has prevented the entry of a very large number of new pests of the farm, orchard, and forest. The number of foreign pests which have been intercepted with plant and plant product importations, of which a fairly accurate record has been kept, makes a very imposing list--many thousands of different interceptions covering a range of hundreds of new pests.

PACKERS AND STOCKYARDS ADMINISTRATION

ADMINISTRATION OF GRAIN FUTURES ACT.

Chester Morrill, In Charge.

Administration Building, Room 23

Branch Tel. 544

Packers and Stockyards Administration.

Chester Morrill,....Assistant to the Secretary, In Charge.
Charles J. Brand,...Consulting Specialist in Marketing, In Charge
Economic Division.

Stephen Bray,.....General Assistant.

Judge B. T. Hainer,.Attorney.

H. M. Gore,.....In Charge, Trade Practices Division.

G. N. Dagger,.....In Charge, Rates, Charges and Registration Division.

Arthur S. French,...In Charge, Audits and Accounts Division.

George T. Ash,.....Chief Clerk.

C. Arthur Briggs,...Weight Supervisor.

Allston T. Cushing,.Valuation Engineer.

Samuel Harvey,.....Specialist in Statistical Analysis.

The administrative division of the work is indicated in the titles of the various heads of divisions as set out above.

Administration of Grain Futures Act.

Chester Morrill,....Assistant to the Secretary, In Charge.

Rollin E. Smith,.....Grain Supervisor, administrative detail.

George T. Ash,.....Chief Clerk.

FIXED NITROGEN RESEARCH LABORATORY

F. C. Cottrell, Director

American University, Massachusetts and Nebraska Aves., N. W.

Tel. Cleveland 1800

Governmental research on the transformation of nitrogen of the air into forms useful as fertilizer (and explosives) is centered in the Fixed Nitrogen Research Laboratory of the Department. Investigations are being made on various methods of obtaining atmospheric nitrogen in chemically combined forms such as by direct combination of nitrogen and hydrogen to form ammonia under conditions of elevated temperature and very high pressure (Haber process); the direct combination of nitrogen and oxygen in an electric arc (arc process); and the combination of nitrogen in the form of cyanamide, cyanide and nitrides. Studies are also being made on the transformation of the initial products of fixation into compounds particularly suited for fertilizer.

Some of the methods of fixing atmospheric nitrogen can be seen in operation on a small scale at the laboratory. The initial products of various nitrogen fixation processes and some of the subsequent transformation products having fertilizer value can also be seen.

Transportation to and from this laboratory will be furnished.

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and to ascertain his identity and to learn if he intended
to go to the city of Xanthos or to the city of Lycia and
if he intended to remain and to what if he intended remain
in the city of Xanthos for a number of days or months. If he
intended to remain longer than a few days from that time
he would have his opinion of the place to remain in from him and if
he had any objection to remain in that place (Xanthos) he
would say so and if he did not like the place he would not
remain there and no other place could be given him but where
he had a right to go to remain there he would remain there.

Now if any person who has a right to remain in the city of Xanthos
or in the city of Lycia and if he does not like the place he would
say so and if he did not like the place he would not remain there
but if he did not like the place he would remain there he would

remain there until he could find another place to remain there.